MENDEL UNIVERSITY IN BRNO

Faculty of regional development and international studies

The Influence of European Subsidies Programmes on Environment and Agricultural Production in Region

Diploma thesis

Author:
Bc. Iva Čáslavová

Supervisor:
Ing. Radka Redlichová, Ph.D.

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Declaration:

I declare that I carried out this thesis ,,The Influence of European Subsidies Programmes on Environment and Agricultural production in region“ independently, and only with the cited sources, literature and other professional sources.

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Abstract:

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The thesis is dealing with searching for dependency between allocated EU funds and selected indicators of regional development. For purposes of thesis were selected three indicators from environment and two indicators from agriculture production. Using statistical methods were funds drawn from OP Environment and State Agricultural Intervention Fund correlated to selected indicators. The selection of mentioned indicators was based under condition of reaching the highest accuracy of dependencies. The conclusion of work will result in final assessment whether European funds have been affecting agriculture production and environment conditions in region.

Key words: European funds, subsidies, indicator, correlation dependency, effectiveness, trend, times series, agriculture production, environment

Abstrakt:

ČÁSLAVOVÁ, I. Vliv Evropských dotačních programů na životní prostředí a zemědělskou produkci v regionu. Diplomová práce. Brno 2015

Práce se zabývá hledáním závislosti mezi alokovanými finančními prostředky z EU a vybranými indikátory regionálního rozvoje. Pro účely práce byly vybrány tři indikátory z životního prostředí a 2 indikátory ze zemědělské produkce. Použitím statistických metod byly fondy čerpané z OP Životní prostředí a Státního Zemědělského Intervenčního fondu korelovány s vybranými indikátory. Výběr již zmíněných indikátorů byl zvolen na základě jedné z podmínek, a to dosažení nejvyšší přesnosti závislostí. Závěrem práce bude zhodnocení dopadu Evropských fondů na životní prostředí a zemědělskou produkci v regionu.

Klíčová slova: Evropské fondy, dotace, indikátor, korelační závislost, efektivita, trend, časová řada, zemědělská produkce, životní prostředí

Content

1. Introduction and goal of the work

1.1 Introduction

Accession of Czech Republic to the EU is an important milestone in the history of our country, as it represents integration into one of the largest economic and political groupings in the world. With the accession to the EU is associated a lots of positive and less positive benefits for the state as a whole, but also for individual citizens of our country. One big positive benefit which comes into our mind first, is that integration brings the ability to draw European funds, the main instrument for implementation of economic and social cohesion. European funds are aimed in reducing economic and social disparities between Member States and their regions. They are used as an instrument for improving the life quality of the population, to improve the performance of the economy and reduce unemployment.

Currently, the Czech Republic is in the programming period 2014-2020, where the disposable amount of European funds is 24 milliards euros. In comparison with the previous programming period, it is about 2 milliards euros less. In this thesis is tried to find for dependency between European funds allocated at NUTS III level and determined indicators of regional development. From this point of view it is possible to perceive it as proving of the effectiveness (which is about using the funds in the most prosperous way) and it's following impact on regional development (through selected indicators). The programming period of 2007-2013 was selected for purposes of thesis, because in the time of proceeding the work the administration process of drawing funds was almost completed. The effective drawing of EU funds is a hot topoic of political discussions, seminars, conferences and media environment, and as well the funds are main objective of machinations with them. When it comes to the effective drawing of EU funds, there is a lot of unexplainable and unprovable facts which require answers. The real value of subsidies is it's effectiveness. But the sad thing about this topic is nobody is solving this issue. The number one in political disccusion is always the amount of drawing funds and whetever all disposable budget is drawn but according to my opinion, effectiveness worth more than just observing of the amount drawn. The politicians and interest groups are not interested in searching for answers on mentioned questions. They are rather about not responding them. Actions speak louder than words, so here comes turn on academic area and independent economicsts to solve this situation.

1.2 Goal of the work

The problematics of effective drawing European funds is not solved by politicians and economicsts and according to my opinion the real impact of EU funds is the most important factor determining EU funds as useful. The often-discussed topic is rate of drawing funds, effectivity of drawing funds but who really cares about real impacts on regional development? The European Union sets strategies of sustainable development and through Operational Programmes is complying them. In many cases drawing European funds is not proceed according to plan and this can result in inefficient allocation of financial instruments.

As the introduction of discussed topic indicates, the main goal of this work is to find out the influence of European funds on environment and agricultural production in region. As long as drawing EU funds is hot topic in political and public circles since the beginning of using them, the goal of work is about to identify whatever drawing of funds have affected chosen environment and agricultural production indicators.

In order to find the effectiveness, in other words find any correlation dependency between European funds and regional development indicators, was summed up total funds drawn by each subsidy programme.

In order to approach goal of whole thesis were set following targets:

1) Defining of Czech Regional policy, regional development, indicators and factors influencing it

2) Searching for correlation between European funds and selected indicators and identifyng the main factors having impact on results

3) Evaluation of results and conclusion

Research question: Is there any correlation between European funds and selected environment and agriculture production indicators?

2. EU Regional policy and regional development

2.1 EU Regional policy

EU regional policy is an investment policy which supports job creation, competitiveness, economic growth, improved quality of life and sustainable development. Regional policy is the expression of the EU's solidarity with less developed countries and regions, concentrating funds on the areas and sectors where they can make the most difference. Regional policy aims to reduce the significant economic, social and territorial disparities that still exist between Europe's regions. Leaving these disparities in place would undermine some of the cornerstones of the EU, including its large single market and its currency, the euro. (Europa EU, online)

While the European Union is one of the most prosperous economic areas in the world, the disparities between it's Member States and regions are striking. With the accession of ten new Member States in 2004, the development gap between regions has doubled. That is why the Union aims to achieve two important objectives: harmonious development in the Union and economic and social cohesion, which demonstrate it's solidarity with the least-developed regions. The new cohesion policy will do more to target the EU's strategic priorities, especially the Growth and Jobs Strategy, and funding will focus on areas such as innovation. (Europa EU, online)

2.1.1 Objectives of regional policy

As Ministry of regional development indicates, in the 2007-2013 programming period, regional policy is observing three objectives, with EUR 347 billion being set aside to achieve them in the European mid-term budgetary framework (financial perspective) through the structural funds and Cohesion Fund.

Convergence objective: support of economic and social development of NUTS II level regions with a gross domestic product (GDP) per inhabitant lower than 75% of the average of this indicator for the whole of the European Union. Furthermore, countries with a gross national income (GNI) per inhabitant lower than 90% of the average of this indicator for the whole of the European Union are eligible to utilise funds from this objective. This objective is

financed from the ERDF, ESF and CF, and all cohesions regions in the Czech Republic, except for the Capital City of Prague.

Regional competitiveness and employment objective: support for regions on the NUTS II or NUTS I level that exceed the limit indicator for inclusion in the Convergence objective. This objective is financed from the ERDF and ESF, with the Capital City of Prague being the eligible region in the Czech Republic.

European Territorial Cooperation objective: supports cross-border cooperation of NUTS III level regions located along all internal and certain external borders and all NUTS III level regions along maritime borders that are generally not more than 150 kilometres distant from each other. Interregional and transnational cooperation between the regions is also supported. This objective is financed from the ERDF, and all regions in the Czech Republic are eligible.

EU funds represent the primary instrument for implementing European economic and social cohesion policy. It is through them that the financial resources intended to reduce economic and social disparities between Member States and their regions are distributed. (Ministry of regional development CZ, online)

2.2. Regional policy in CR

Formation of regional policy in the Czech Republic has undergone a period of transformation rather complex evolution. Initially, in a short period of enthusiasm (1991-1992), when the relevant bodies of decision makers prevailed ambitious concept of regional policy, which was sensitive to the specific needs of each regions, somewhat paradoxically no significant regional policy was not implemented. (Potluka, 2003)

Nowadays Czech regional policy is understood as a conceptual activity of state, regional and local authorities, which aims to contribute to balanced and harmonious development of individual regions, to mitigate unreasonable differences between level of development of regions and to improving regional economic structure.

Regional policy represents:

- conceptual and executive work of state and regional self-governing bodies
- defines main directions and strategic goals of regional development in particular levels, i.e. national and regional
- Creates methods and procedures to ensure the realization of objectives and priorities (Wokoun, 2008)

2.2.1 Reasons of establishment regional policy

Regional policy of European Union belongs to the most important activities. What does it actually means policy? There were many reasons why to establish regional policy, mostly from economic, social, politic and lately ecological reasons. Their main goal is to increase economical and social integration and thus decrease the disparities in development of each region. Tools of regional policy help to reduce negative impacts of integrations process. From very beginning European integration regional disparitites were obvious – in year 1958 was regional gross domestic product in Hamburg five more times higher than in Calabria. (Marek-Kantor, 2009)

According to Harvey and Amstrong, who say some regions have higher income levels and better jobs prospects than others. Why should this be so? What factors determine the income level and jobs prospects of region? Why is it useful to be able to predict future growth and development of regions, or the consequences of national business fluctuations for regional income and employment levels? Major new investment has large economic impacts on a region's income and employment and it is essential for policy makers to have accurate forecasts so that these effects are taken into account in the physical and economic plans for the region. (Amstrong, 2009)

2.3. Programming periods

2.3.1 Programming period 2007-2013

The EU funds represent the primary instrument for implementing European economic and social cohesion policy (ESC), also known as Information on EU Funds. The aim is to reduce the differences between poorer and richer regions in terms of living standards and economic

levels and, at the same time, increase the ability of the European Union as a whole to face the challenges of the 21st century. The European Union has three primary funds at its disposal:

Structural funds:

European Regional Development Fund (ERDF)

European Social Fund (ESF)

Cohesion Fund (CF)

For the purposes of utilising EU Fund resources in 2007-2013, a total of 26 operational programmes, which are further subdivided into thematic and regional (Convergence objective) programmes, programmes for Prague (Regional Competitiveness and Employment objective) and programmes under the European Territorial Cooperation objective.

Assistance from the EU funds is directed to projects supporting development of transport, transport infrastructure, environmental protection, urban development, tourism, human resources, and improvement of the quality of services provided by public administration and local governments, private business, science and research and cross-border cooperation.

Each Operational Programme also provides a list of those who may apply for financial resources. Generally, projects may be proposed by municipalities, regions, ministries, entrepreneurs, transport infrastructure owners, non-profit organisations, schools, research centres, educational institutes and others. (Regionální rada region soudružnosti Jihovýchod, online)

EU funds absorption capacity

The absorption capacity from the viewpoint of the EU Structural policy is the ability of the respective economy to receive and effectively utilize financial resources in order to reduce regional disparities in the economic and social development. Generally speaking, the absorption capacity is the better, the less developed is the given economy and the larger are prevailing structural disparities between individual regions. (Boháčková, 2009)

2.3.2 Programming period 2014-2020

Preparation of the programming period 2014-2020 is in accordance with the upcoming budgetary framework of the European Union for the seven-year period. The final form of the financial allocation for the Czech Republic is currently not yet definitively established. Indicatively, it will be approximately 20.5 billion € at current prices. The exact amount will, however, clarified.

One of the important chapters of the EU budget in the coming period will those containing funds aimed at promoting cohesion policy, rural development policy and the Common maritime and fisheries policy. Collectively, these funds will be called "European Structural Funds and Investment", abbreviated ESI +. These are two structural funds: the European Regional Development Fund (ERDF / ERDF), the European Social Fund (ESF), as well as the Cohesion Fund (CF / CF), European Agricultural Fund for Rural Development (EAFRD / EAFRD) and the European Maritime and Fisheries Fund (EMFF / EMFF). The content of these funds from their current focus has not changed much.

European Union's intention is that these funds as much as possible will contribute to the achievement of the EU 2020 strategy - a strategy for smart, sustainable and inclusive growth. To make better usage of these funds for the benefit of the EU 2020 strategy processes each State Partnership Agreement, approved by the European Commission. Contribute to it's implementation of individual programs. (European structural and investment fund, online)

2.4 Regional development

Regional development defined as targeted economic development of bigger territory than geographically defined municipality. Ministry for local development uses own definition for regional development and defines it as socio-economic and environmental growth of potential and competition in order to increasing life standard and life quality of their inhabitants. (Stejskal, 2009)

Stimson, Stough and Roberts defines regional development as application of economic processes and sources available in region which result in sustainable development and desired

economic results for region which meets expectations of enterprises, residents and nonresidents. (Robert J. Strimson, 2006)

According to Minařík and Dufek, the development of the region is understood as a process - ongoing storyline, implemented for the purpose of quality of life in the region. So, in general, the successful regional development enhances the quality of life in the region. (Minařík-Dufek, 2009)

The main purpose and indicators of regional development are described as follows according to Minařík and Dufek. The basic purpose of regional development is to sustainably increase the quality of life in the region, ie. continuously achieve positive economic, social, environmental, or other changes in the region, without compromising or severely impeded the species of life of future generations.

In order to measure, for example, and the time to compare the level of regional development or state of quality of life in the region, it is necessary to determine in advance varying degrees of generality parameters to the level of regional development and the state of quality of life in the region for our measurements describe.

The generality and the existence of an infinite number of indicators and subjective effects of many of them can not be established entirely objective and at the same time universally valid procedure for determining the level of regional development or of the quality of life in the region.

Currently, it is possible to trace the various efforts of different parameterization welfare regions. Good news is the fact that, in accordance with the above, most of the descriptions or evaluation of the quality of life of the regions or the level of regional development are based on generally accepted and not questionning sustainable development principle, which states that a necessary condition for sustainable development, balanced development and balance its three pillars. (economic, social and environmental).

Tab. 1 Category competitiveness according to descriptor and indicator

Pillar	Descriptor	Indicator
Economic	The dynamics of economic development of the region	Area of industrial zones
		The number of jobs created
		Provided incentives for investment in supported areas
		The share of the production of innovative entrepreneurship in the total production of the region
		The number of supported joint projects of companies and research institutions
		The number for last year created jobs in science, research and development
		Expenditure on research and development over the last year
		The proportion of employees in science and R & D
Social	Investment in human capital	Participation in tertiary education
		Percentage of population with tertiary education
		The share of people with tertiary education to employment
		The annual amount of funding for further education
		The proportion of participants in continuing education
Environmental	Friendly management of resources	The share of energy from renewable sources in the total energy consumption of the region
		The proportion of recycled waste to total waste production
		Percentage of population municipalities separated waste collection

Source: Minařík- Dufek, 2009

2.4.1 Regional development in CR

Czech Republic is characterized by scattered settlement structure with a historically given high number of municipalities. In Czech Republic is high number of municipalities, from which only small part is possible to define as a cities altough some of small municipalities obtained legal status of town.

Czech Republic disposes only 5 cities which exceed threshold population of 100 000 inhabitants. From functional point of view is possible to observe following urbanited areas:

a) Praha agglomeration
b) East Bohemia agglomeration
c) North Bohemia conurbation
d) Liberec - Jablonec
e) Ostrava agglomeration
f) Brno agglomeration
g) Plzeň
h) České Budějovice
i) Karlovy Vary
j) Middle Grouping
k) Zlín

(Stejskal, 2009)

2.5. Regional structure in CR

2.5.1 Main regional disparities

Developments in the individual regions of the Czech Republic, the difference in factors affecting regional development and depending on different starting conditions, the location and degree of urbanization of the different dynamics and different changes of regional economic structures.

A comparison of the main factors of regional development is a clear tendency deepening of interregional disparities, which can be characterized as follows:

- there is a relatively significant deepening of differences in economic performance of regions in a number of critical indicators for living standards (GDP / capita, average wages, unemployment, etc.),
- in regions affected by the need extensive restructuring of the industry (especially in the Ústí and Moravia-Silesia) is still high unemployment, we are not fast enough to effectively implement the necessary structural changes,

- deepens the distinction rural environments comparatively disadvantageous to the urban environment, communities in rural areas have unfavorable conditions for business and the aging of the rural population,
- lagging economic level of a large part of the border districts,
- still insufficient connection northeastern Moravia and Silesia on trans-European communication routes and the capital, which significantly contributes to the lack of interest of investors, especially foreign ones on this territory,
- there are differences between the percentage of college educated people in the two largest cities (Prague and Brno) and other regional cities,
- manifested increasingly disturbed environment as a result of past industrial activity in northwest Bohemia and in northern Moravia and through the development of automotive transport in Prague and other major cities

  (Strategic development document of Czech republic)

2.5.2 Main regional socioeconomic disparities

René Wokoun et al. states the development in particular regions of the CR as a difference in factors affecting regional development depending on different starting conditions, the location and degree of urbanization of different dynamic and different changes in the structure of their economies. Deepening regional disparities in production, productivity and employment is negatively reflected in regional competition. In order to sustain or strengthen economic development and employment in competitive environment have to be fulfilled three mutually combinable conditions:

1) Suitable level of technical infrastructure and human capital
   - Effective transport, telecommunications and energy networks, quality ecological facilities)
   - Manpower with appropriate level of skills and training
2) Ability of innovation and use existing know-how and follow the path of sustainable development
3) Environmental sustainability

   (Wokoun, 2008)

2.5.2.1 Main causes of nonequilibrium development of regions and the emergence of regional dsiparities

1) Significant decline in production and employment in heavy industry
2) Decline in textile and electro-technical industry
3) Reducing the number of workers in agriculture
4) Development of tertiary sector
5) Uneven development of private enterprise
6) Quality of human resources
7) Different level of infrastructure
8) Low interregional labour mobility
9) Persisting unsatisfactory state of environment
10) Existence territorial-technical specific and issues (related to mining and quarrying)
11) Different geographic position of regions

(Stejskal, 2009)

2.6 Regional competitiveness

The regional competitiveness is possible to generally define as the ability of the region under conditions of free competition to produce goods and services, meeting the needs of the market, the implementation of welfare enhancing the region, the state and its citizens. In their view, the activities of federal and regional government is needed for functioning of companies in the region and as well relevant regional human, financial, and natural resources. Regional competitiveness is an important factor for regional development. Regions, cities and towns are competing in creating, acquiring and maintaining and promoting economic entities. These businesses to stabilize and generate new jobs, new opportunities, and have a major impact on the prosperity, well-being and standard of living of regions and municipalities. Regional competitiveness characterizes the ability of regions to generate revenue and maintain employment levels within the national and international competition. (Proskuri-Konoplyanik, 2006)

Regional Competitiveness and Employment objective is the second Cohesion Policy and is a support areas that do not fall under the Convergence objective, ie. those whose per capita GDP is higher than 75% of the EU average. (Marek-Kantor, 2009)

2.6.1 Methods used for assessing regional competitiveness

To sort the individual EU regions was compiled index of regional competitiveness, which can be used to observe the position of regions NUTS II EU. As a source of data was used data provided by supranational statistical databases such as Eurostat and OECD statistics. For the evaluation of regional competitiveness was applied three basic criteria:

• Territorial perspective - were used as indicators of territorial units NUTS II

• Time aspect - in most cases it was possible to detect indicators to calculate the index in the period 2004-2009, so this becomes a key period for subsequent deduction factors of competitiveness

• Relevant categories - identification of areas or sectors that may have an impact on regional competitiveness. (Wokoun R., 2012)

Tab. 2 Category of competitiveness indicators

Category	**Indicators of competitiveness**
economic	GDP per capita (PPS)
	Rate of unemployment (%)
social	Share of university population in the population aged 24-64 years (%)
	The average annual net migration per 1,000 population (%)
	Income (per capita in PPS)
	The share of long-term unemployment (%)
ecological	Production of greenhouse gases (NUTS 0)

Source: Wokoun R, 2012

2.6.2 Regional competitiveness in CR

Competitiveness regions of the country and its attributes is very similar to that in other EU countries. In particular file umpteenth characteristics of which consists:

- Competitive economy based on competitive business environment, a modern structure with a higher proportion of advanced industries and sophisticated services, as well as the existence of research and development capability, application innovation centers, modern research the research, development and innovation activities, the ability of their use in business and last but not least on an inclusive and flexible labor market with a skilled and flexible workforce
- Open and flexible company. The company, which actively uses the opportunities generated at the global and European level; company that continually improves its educational potential, actively solve their internal problems associated with migration, population aging, social exclusion, which is building an effective system of public administration
- Quality of the physical environment is protected and developed, altough landscape potential is exploited sustainably, ensure the availability of territory, transport and communication links and connections
- Balanced development of the Czech Republic and it's regions consisting mainly in reducing existing disparities, stimulate regional growth potential, strengthening the role of cities as centers of regional growth and development and the sustainable development of rural areas. (Wokoun, 2012)

2.6.3 The position of the regions of the Czech Republic in the European Union under the regional competitiveness index

Based on an index of regional competitiveness were all EU regions, a total of 267, sorted according to their competitiveness. Regions of the Czech Republic was ranked in the second half of the rankings, with the exception of Prague, which was ranked at the 20th position.

Tab. 3 Sequence of regions under the regional competitiveness index

Ranking	Region	RCI
20	Prague	50,45%
165	Central Bohemia	36,27%
193	Soutwest	32,04%
226	Southeast	28,25%
228	Northeast	27,35%
232	Central Moravia	25,65%
241	Silesia	23,23%
245	Northwest	22,70%

Source: Wokoun, 2012

The results presented in Table 3 are not surprising given that they correspond to the long-term success perception regions in the country. The survey shows a noticeable difference between Prague and other Czech regions. (Wokoun, 2012)

2.6.4 Selected indicators for comparing regional competitiveness and socio-economic level of the regions of the Czech Republic

Indicators for evaluating the socio-economic level of the regions, we use indicators of gross domestic product, which represents the value of goods and services that were produced in the region

Tab 4. Development of GDP across regions (NUTS II), year 2000 = 100%

NUTS II	2007	2008	2009	2010	2011	The average GDP growth rate (2000-2011)
Prague	177,61	190,92	185,54	190,86	190,13	1,06
Central Bohemia	166,71	176,33	169,05	169,59	174,54	1,05
Southwest	155,47	154,34	153,77	156,17	157,80	1,04
Northwest	150,67	156,27	158,66	154,78	153,00	1,04
Northeast	146,33	150,54	147,62	149,73	151,07	1,04
Southeast	159,38	167,87	165,38	164,93	167,89	1,05
Central Moravia	151,41	162,03	159,24	158,69	161,68	1,04
Silesia	167,98	177,92	166,49	171,37	177,38	1,05
CR	161,37	169,56	165,62	167,40	169,25	1,05

Source: Wokoun, 2012

Based on the values of cumulative changes in GDP NUTS II regions listed in the table it can be concluded that in terms of the development of socio-economic level, there are four basic categories of regions. Prague, regions whose GDP growth exceeds significantly the growth of the Czech Republic, regions whose the growth of GDP is comparable to the increase in CR and regions whose gain is significantly below the national average. (Wokoun, 2012)

We are interested in the category where the ranks Southeast region, which is a category of regions whose growth is comparable increase in the Czech Republic.

Based on the results listed in the table falls into this category region NUTS II Southeast and Central Moravia. It is obvious that this relatively favorable location Southeast region, as in the case of competitiveness, and in case of GDP growth in relation to the Czech Republic, is largely due to the presence of the next largest economic center in the Czech Republic - the city of Brno. (Wokoun, 2012)

2.7 Strategy of regional development in Czech republic

The basis for effective regional policy is the analysis of the relevant factors of regional development, that means identification key factors that have a stimulating impact on regional development. It is apparent that the regional development factors are time variable, which is connected on one side with a degree of knowledge of socio-economic processes, on the other hand is subject to change because of the development of structures and their interaction.

These factors are the development potential of regions and consists of:

- Natural sources and natural environment as long-term determinants of regional development,
- Tangible factors in terms of their production potential and infrastructure,
- Intangible factors especially innovations and their ability to create,
- Intangible factors as innovation and the ability of their creation and dissemination, availability and effective use of information and communication technologies (ICT), the institutional environment,
- Human resources with appropriate levels of skills and vocational education.

The degree of development of Czech society and knowledge of socio-economic processes, which can be identified with the level in the most advanced countries in the world, but mainly empirical evidence of the last few years confirm that a significant factor in regional development postindustrial society are human resources. (Minařík, 2013)

- ✓ According to Minařík et al. is the basic document, which should constitute a prerequisite for a performance of regional policy, which will increase the level of regional development and quality of life in the region considered strategies for regional development in the region. (Minařík-Borůvková-Vystrčil, 2013)

This document is usually processed for several years and it is important updates.

Each SRD usually consists of three parts:

- ✓ *Profile of the region's* is first, usually the largest part of the SRD. It is a comprehensive document, which is the basic background material for the development of a regional analysis. Profile of the region is structured and usually contains the most important data and indicators that describe the characteristics of the region, including not only a description of values and parameters, as well as trends and conditions that are characteristic for the region. Contains economic situation and the environmental situation

- ✓ *Regional analysis*, sometimes SWOT analysis is considered to be a document that is usually the second part of SRR and which arose as a result of a serious study of the profile and other policy materials including strategic materials and higher tiers based on a thorough analysis of the identified parameters, indicators and other manifestations level of regional development and quality of life in the region. The fundamental basis for the development of a regional analysis of the region is a document bearing the profile of the region

- ✓ *Program development of the region.* Program SRR is the third part of the further development of the region and improving the quality of life of it's regional flagship SRR. The program is actually part of the SRR program (support) the development of the region. Primarily based on the analytical section (analysis of the region), identifies and lists

priroity axes and their respective priority program objectives and appropriate support. The second part of the program strategy should be manageable financial and schedule the processing of which usually leads to a sobering and realistic description of objectives. (Minařík-Borůvková-Vystrčil, 2013)

Regional Development Strategy of the Czech Republic

Minimum content strategy of regional development is given by Act no. 248/2000 Coll., On regional development support, which in its § 5 provides that:

Regional Development Strategy contains a particular analysis of the state of regional development, characteristic strengths and weaknesses of sides in the development of regions and districts, strategic objectives of regional development in the Czech Republic, the definition of state-supported regions and recommendations the central administrative offices and regions to focus development sectors falling within the it's scope.

Ministry for Regional Development in the drafting of regional strategies development uses mainly statistical data, appropriate planning materials, landscape policy development and land use plans, limits using of territory and organizational principles, principles of conservation and creation of the environment and development programs in the region. National Development Strategy endorses the proposal of the Ministry for Regional Development of the Government. (Ministerstvo pro místní rozvoj, 2006)

2.7.1 Structure of the priority areas and priorities of the Regional Development Strategy

The aim of the strategy is to formulate themes and aspects important to promote regional development and the inclusion of the regional dimension to the various sectoral policies where appropriate and necessary. Strategy therefore do not deal with all the problems of sectoral nature. Regional Development Strategy represents a strategic direction for future regional development programs, whether it will be implemented at national or regional level or with the financial support of the European Union or without notice. The link between strategy and programming documents of the structural funds exists for development activities, priorities and measures whose support allowed by the regulations for each Structural Funds and the activities that will be differentially utilized to promote balanced regional development of the Czech Republic. Regional Development Strategy is not a document on the basis of which will be immediately distributed to the Structural Funds, but it is a starting point for preparation of regional development programs (§ 6 of the Law on Regional Development Support) and for the formulation of regional approaches within sectoral and sectoral policies and programs, including the operational programs Structural Funds. For these reasons, the scope and focus of priority areas and priorities specified slightly wider than in the National Development Plan and National Strategic Reference Framework for the preparation of operational programs. (Ministerstvo pro místní rozvoj, 2006)

The projection of the priorities of the Regional Development Strategy into operational programs of the Structural Funds is conducted at several levels:

- **Regional Operational Programmes** processed and implemented cohesion regions,
- **Integrated operational program,**
- **Operational programs prepared by sectoral ministries,** but explicitly respects the regional dimension of the problem**,**
- **Operational Programmes of cross-boarder cooperation,**
- **Operational Programmes for Regional Competitiveness and Employment implemented in Prague NUTS 2 region**

Regional Operational Programmes. Regions, including regions associated to the cohesion regions already have experience with the implementation of SROP and also took a number of supporting programs. It was therefore decided that for the period 2007 - 2013 and implemented in a decentralized prepare their own regional operational programs (ROP) and bear responsibility for their implementation. ROP's will cover the priorities of the Regional Development Strategy, respectively, their part, which not only has a distinctly regional dimension, but also corresponds to the competencies of regions, municipalities and their options for better involvement of regional specialities and development opportunities. They are mainly in the existing JROP activities implemented under the grant schemes, but also individual projects clearly local importance.

Terms of operational programs financed by EU structural funds, however, require binding regional programs for cohesion regions (NUTS II), which will be put into practice requires cooperation between regions and adequate administrative capacity. Her strengthening required and appropriate legislative amendment (amendment to Act No. 248/2000 Coll.), without whose acceptance would not be possible to implement these programs.

Implementation of some of the priorities in the current SROP was centralized and the final decision confirmed by the managing authority MMR, although based on the recommendation of the regional councils. SROP contained two planes decisions. After the independence of 7 ROP's will be "supra" activities concentrated in the new operating program, because some (especially larger) projects will exceed the possibilities of regions.

Programmes of cross-boarder cooperation. It's character as the specific regional programmes including peripheral, border regions and their cooperation with neighboorhooding foreign regions. It's aim is to promote the economic and social integration of the border area by removing remaining barriers and enhancing their development potential. Through joint interventions will be strengthened mutual economic, social and cultural relations, common management of natural resources, tourism development and the building of a flexible labor market.

Prague. Specific position of Prague as the capital and major pole of development, the economic level above the EU average, will be expressed in two separate operational programmes under the regional competitiveness and employment. The Operational Programme Prague - Competitiveness is to increase the competitiveness of Prague as a dynamic metropolis of an EU member state by removing development barriers and

weaknesses of the region, improving the urban environment, improving accessibility of transport and telecommunication services and developing innovative potential. The Operational Programme Adaptability and Employment is about to increase employment and economic growth of Prague's economy through the development of efficient and flexible labor market, skilled and competitive workforce, utilizing the research and development potential of the region and the integration of socially excluded groups.

Integrated operational program. Based on the experience with the period 2004 -2006 is recommended to create a new operating program, which will reflect some new priorities Regional Development Strategy, to reflect new priorities and recommendations of the EU. Particular emphasis is placed on the development of public services, stabilization of urban structures, sustainable development of the territory, selected parts of urban problems and strengthening of new poles of development (science and innovation, but also eg. tourism).

Because mostly it will be a larger, integrated projects, the preparation and implementation will be difficult for coordination (inter-ministerial and regional), it is recommended that the governing body of such an operational program, the Ministry for Regional Development, is expected between partnerships with interested ministries and regions.

Given that neither the Integrated Operational Program will not cover all national priorities must be part of these priorities continue to be implemented in national (Czech) programs (eg. for regions with concentrated state support) financed from public sources.

Integrated Operational Programme will include the following priority actions of SRR:

- Institutional support system for regional development and cooperation (ICT's)
- Effective Governance (simplifying access for citizens and businesses to public services)
- Settlement structure and housing (prefabricated housing regeneration, sustainable development of selected territories)
- Urban Regeneration
- Organization and management of tourism (destination management, standards of tourism services)
- Development of tourism infrastructure (development of supra-regional infrastructure)
- Development of cultural infrastructure and services

- Maintenance and utilization of cultural monuments
- Education and awareness (digitization of movable and immovable heritage fund)
- Increasing the economic performance of problematic areas (strategy and planning)

Operational programs within the competence of sectoral ministries are primarily a nationwide dimension, excluding Prague. City of Prague. The support of these programs is provided under the same for the entire country.

Flat application of this approach would mean a significant weakening in the event of cancellation of state (national) programs of support for regional development, the demise of regional policy. One of the key features of regional policy, namely selectivity, it means exclusive or preferential support substantively problematic regions (EU also supports the convergence objective only selected disadvantaged regions).

Therefore, as shown by the analysis of factors of regional development, it is necessary that even these "super" operational programs include certain "regional dimension". This can be achieved so that:

- selected relevant priorities will include relief to aid in regions with concentrated state support

- managing authorities will monitor the benefits of priorities supported by region and will be part of its activities to act to mitigate regional disparities in the sector.

The benefit can be realized e.g. by some measures you can have a geographic limits, the scoring system may favor projects from troubled regions or that the maximum aid will be applied only in disadvantaged regions and in other regions, support will be lower. The specific procedure chosen by the Managing Authority.

Activities that will emphasize the territorial dimension in accordance with the intention focused support to troubled regions, are:

The Operational Programme Enterprise and Innovation

- Establishment and development of companies and technologically oriented

- Development of firms by encouraging innovation (technical and non-technical), and ICT R & D activities

- Creating and improving business support services, especially through infrastructure for business, counseling support, information transfer and patent activity

- Development of human resources in enterprises mainly through training and education of employees and investment in appropriate infrastructure

- Improving infrastructure for entrepreneurship, innovation and industrial research and in particular the use and regeneration of brownfields

The Operational Programme Human Resources and Employment

- Increasing adaptability of workers and employers through the development and implementation of systems and strategies for training workers in order to increase business investment in training and increase employee participation in training, developing systems for anticipating economic change

- Improving access to employment and prevention of unemployment, particularly long-term unemployment and older workers, through the implementation of active labor market policies and the development of active employment policy

- Strengthening the integration of people at risk of social exclusion or socially excluded, institutional development and quality of services aimed at social integration and the removal of barriers impeding participation in the labor market, including gender discrimination

The Operational Program Education

- Promoting lifelong learning by enhancing the availability and quality of continuing vocational training knowledge-guard.

For other relevant priorities of the above operational programs and operational programs of research, development, innovation, transport and the environment will be managing authorities to monitor the progress of implementation and the benefits realized priorities broken down by region and will be part of it's activities to act to mitigate regional disparities in the sector (sector). There will also be in accordance with Regulation of the European Parliament and of the Council on the European Regional Development Fund as possible to

take into account and contribute to the specific needs and problems of development of urban areas and rural areas especially remote rural areas. (Ministerstvo pro místní rozvoj, 2006)

2.8 Drawing of funds according to Operational Programmes during programming period 2007-2013

In programming period 2007-2013 South Moravian region was drawing funds from several operational programmes. To observe the programming period 2007-2013, from general point of view, Czech Republic has a EUR 26.7 billion from EU funds. In this programming period, regional policy pursues three objectives:

1) Convergence

2) Regional competitiveness and employment

3) European Territorial Cooperation Objective

In the context of the issues examined will look to focus on funds invested from the Convergence Objective, which includes eight thematic operational programs and seven regional operational programs. The regional operational programme - Southeast and key thematic operational programmes are: OP Transport, OP Environment, OP Enterprise and Innovation, OP Research and Development for Innovations, OP Human Resources and Employment, OP Education for Competitiveness, the Integrated Operational Programme. Last two Operational Programms financed from EAFRD are Rural development programme and OP Fisheries.

For observation of thesis of analysed territorial unit there were chosen two subsidies programmes, which are relevant with indicators of environment and agricultural production. Those are OP Environment (including three priority axis which were taken into consideration) with amount drawn 13 358 346 823 CZK and State Agricultural Intervention Fund with amount of 2 991 497 044 CZK.

2.9 Overview of issue examined in past

Public policies in European Union have become the subjet of an increasing number of studies over past decade. Using European funds raised public awarness about efficiency of their usage and in order to measure their efficiency was developped many studies. For example paper examining the impact of structural funds on the italian Mezzogiorno in years 1994-1999 by Marco Perocco. Study was considering the effect in terms of economic growth of the year 1994-1999 by using structural funds expenditures on South Italian regional. (Impact of structural funds on the italian Mezzogiorno, 1994-1999, online)

Case of Andalusia was also contribution to carry out an impact analysis of the European Regional Development Fund (ERDF), one of the most important Structural Funds. The object was to assess it's effect on aggregate and sectoral production, price indexes and consumer's welfare. The study concluded that regional funding has deeply contributed to Andalusian regional development and the effectiveness of the funds seems to be larger for the last years of the study. The Impact of European Structural Funds in the South of Spain (Science direct, online)

2.9.1 Effects of the Structural Funds Programme: state of the debate

The interest in effects of the EU's structural policy roots in empirical work on regional growth and convergence. Sala-i-Martin (1996) started the debate by diagnosing a failure of the EU's structural policy based on cross-sectional regressions showing that the regional growth and convergence pattern in the EU was not different from the one in other federations which lack a similarly extensive cohesion programme. Obviously, such a conclusion requires comparability of federations and their regions in all other respects, which is not necessarily the case. (Sala-i-Martin, 1996)

However, (Boldrin and Canova, 2001) came to similar conclusions as Sala-i-Martin (1996) when focusing on regional growth within the EU and comparing recipient and non-recipient regions. Yet, both papers looked at the combined Structural Funds Programme and not specifically at the Objective 1 scheme, which primarily aims at closing the gap in per capita

income. Furthermore, they used fairly aggregated NUTS I and NUTS II data, since data at the NUTS III level was not available at the time. (Boldrin - Canova, 2001)

This evidence is different from the findings of Midelfart-Knarvik and Overman (2002) who identify a positive impact of the Structural Funds Programme on industry location and agglomeration at the national level. Similarly, (Beugelsdijk and Eijffinger, 2005) and (Ederveen et al., 2006) took a national perspective and found a positive relationship between Structural Funds Programme spending and GDP-per-capita growth (at least, in countries with favorable institutions). At the sub-national (NUTS I or NUTS II) level, Cappelen, Castellacci, Fagerberg and Verspagen (2003) detect a significant positive impact of structural funds on regional growth while Dall'erba and Gallo (2008) do not support this conclusion.

However, as argued in the introduction, there is a number of potential problems with evaluations in earlier work which mostly relate to the limited availability of sufficient data in the cross-sectional as well as the time dimensions, and to the methods applied. With much more data in hand now, we may revisit earlier conclusions and estimate causal effects of Objective 1 treatment of regions by means of a regression-discontinuity design. (Cappelen, 2003)

2.10 Description of the area

South Moravian Region is defined by districts Blansko, Brno-town, Brno-Country, Břeclav, Hodonín, Vyškov and Znojmo and is divided into 21 administrative districts of municipalities with extended powers. A region with area of 719 511 hectares and a population of almost 1 170 thousands ranks fourth in the country. It's location is in geographical terms rather favorable on a historical connection between southern and northern Europe. Within the EU borders with Slovakia and Austria, within the Republic with South Bohemian Region, Highlands, Pardubice, Olomouc and Zlin.

Nearly 60% of total area belongs to agricultural land and 83% from agricultural land forms arable land. In terms of production areas, agriculture production focuses on cereals, rape and sugar beet. Above-average levels of natural assumptions allows to continue a long tradition specialized agricultural production linked to regional specificities. It is mainly viticulture, fruit and vegetable growing. In the region there are more than 90% of vineyard country. Viticulture is developed in the district of Breclav, where vineyards form mostly 50% of the

area of vineyards in the Czech Republic. But vineyards could be find also in Hodonín, Znojmo and partially also the Brno-Country. Within the livestock production the South Moravian Region is one of the leading places in the pig and poultry.

South Moravian Region is a region with significant economic potential. The gross domestic product of the region represents 10.3% of the gross domestic product of the Czech Republic. The GDP share, however, does not share the Region's population to the population of the Czech Republic, which amounts to 11.0%.

Due to the industrial tradition of Brno and its surroundings still has an important position in the region's economy industry that the total value added in the region is 28.4%, another traditional branch of especially southern parts of the region, agriculture accounts for only 1.8%. On the construction accounts for 9.4% and emerging services at GVA contributes 60.3%.

South Moravian Region as a whole has a relatively good quality of air. Air pollution, noise and similar unfavorable influences are only of local character, especially in large industrial centers. From this perspective, high levels of emissions of pollutants prevail mainly in Hodonín and Brno. The share of the pollution is an increasing number of cars, especially in big cities. There is an increasing number of municipalities connected to the sewage system with sewage treatment plant, which is one of the many ways to improve the strong water pollution of rivers Morava, Thaya and Svratka. Issues of environmental protection in this region received considerable attention, as evidenced by yearly volume of investments dedicated to it's protection.

Number of employees in the workplace based companies in the region in 2010 decreased. The average wage 21 703 CZK per natural persons ranks the region well below the national average (22 663 CZK). According to the results of the Labour Force Survey measure of economic activity of the population is below the national average in 2010, the South Moravian Region recorded an increase in the number of employed in main job. The highest proportion of their number has industry in the region, especially the manufacturing sector.

In terms of transport has an important transit function. The backbone of the transport system consists of D1, D2, and the R43 and R52. Important transport hub for road, highway and rail transport and integrated transport system region is Brno. Civil airport Brno - Tuřany the year

round can accept all types of aircraft. The region is undergoing two major rail corridors linking EU and the city of Brno is a member of the Association of European cities interested in building a fast raliway. The increasing intensity, especially road transport can be demonstrated by the number of registered nearly 468 000 cars and more than 67 000 trucks in 2010 in the county. Dense road transport serves the highway and roads in the total length of 4 500 km. (ČSÚ, stastical yearbooks)

3. Methodics

During processing the work is need to be aware of many other factors influencing development of indicators (e.g. climate conditions such as global warming, accelerated level of water and air pollution, source exploitation and use of natural resources). The other factor influencing the result is availability of short time series. Once drawing of funds is divided into programming period and the beginning of drawing funds for Czech republic has launched only from year 2004, selected programming period from 2007-2013 is adequate for observation of effectiveness. The absolute correlation dependency between EU subsidies and indicators can never be achieved because of existing other factors determining the development of indicator. As it's generally known, correlation dependency doest not indicate causality. In other words, European funds do not determine the development indicators. And rationally, it is not determinator. The contribution of funds can affect the development of indicators positively but there is no premise that without contribution of funds development would be zero. Thefore during conluding results, even middle correlation dependency is desirable because it shows relatively high influence of funds.

The theoretical part is dealing with introduction to own problematics. The literature review defines basic terms as regional policy and regional development which underline solved topics, addresses competitiveness of region, methods of measurement and main priorities of the Strategy of Regional Development in the Czech Republic.

Solved problematics involves analysis of territory, based on data processing and evaluation of publicly available databases, especially the Czech Statistical Office.

For the purpose of the work was selected seven-year time series of data starting from 2007 to 2013. The time period was chosen intentionally, because the time interval 2007-2013 is the second programming period for drawing European funds. In the same time period, the Czech Republic has been a member of the European Union's fourth year, and we can therefore assume that the functioning of drawing funds including sometimes difficult administrative process has been adopted as well as linking to previous shortened programming period beginning from year 2004 till 2006. According to publicly available information can be considered that 90% of available funds was drawn.

The concept of work is aimed to searching correlation dependency between selected indicators from environment and agriculture and the amount of subsidies drawn from OP Environment and State Agricultural Intervention Fund which further results in evaluation of EU funds with positive impact or no impact. Issued problemactics faces several obstacles. Firstly it is need to assume that every particular indicator has it's own trend even without drawing funds on them, because as correlation studies defines, correlation dependence does not necessarily mean causation. For this reason is used correlation based on deviations by trends because it prevents distortion of impact of EU' funds on development of particular indicators.

3.1 Methods used

3.1.1 Time series

For statistical data processing were used traditional methods of time series analysis. These are dynamic models.

Time series, as a specific data type, observations of a single statistical variable are arrange in times succession, from the past, until the present. We, therefore, define Y as a time series variable with values y_t. $Y = \{y_1, y_2, y_3,\ldots..y_n\}$, where t = 1,2,3,…., n. In this case, „n“ indicates length of time series and n „t“ is called age of observation. (Adamec, 2010)

Trend, the traditional method of time series analysis, characterizing the overall trend was used for the selected indicators of regional development and for the amount of funds drawn for particular priority axes. To calculate the trend was selected trend function (straight line), defined as $Y'_i = a + b\ t_i$

Based on a pair of deviations of chosen indicator and the relevant Operational Programme or priority axes was used simple linear correlation dependence. The independent variable "x" represents deviations of allocated funds and the dependent variable "y" represents deviations of regional development indicators. The range of statistical file is seven years. By calculating standard deviations (S_x, S_y) variables x, y were calculating correlation coefficient, which shows the dependency rate between two measured values.

3.1.2 Measures of variability

Standard deviation (S_x) is simply a square root of variance, expressed in units of the original variable. It makes variability interpretation simpler compared to variance. For this reason, it is sometimes preferred over the measues of variability. It's numerical values are always non-negative.

$$S_x = \sqrt{S_x^2}$$

(Adamec, 2010)

3.1.3 Correlation analysis

In this analysis, it is calculated coefficient of correlation (r), which is a dimensionless figure indicating the direction and strength of linear relationship between variables Y and X. In statistical literature, it is often referred to as Pearson correlation coefficient, named after British mathematician Karl Pearson (1857-1939), a founder of modern statistics. Zero correlation signifies total linear indepences between Y and X. Change in one variable does not produce on average a change in the other variable. Positive correlation($r>0$) indicates positive relationship, which means that change in one variable is accompanied by change in other variable in the same direction. A negative relationship ($r<0$) means that change in one variable produces a change in the other variable in the opposite direction. Sign of corelation coefficient is always equal to sign of any regression coefficients b_{yx} and $b_{xy.}$ (Adamec, 2010)

4. Evaluation dependency between drawn EU funds and selected indicators of regional development

Very first intention of thesis comes from finding whether European funds have affected positively regional development or have not influenced it at all during programming period 2007-2013. This problemactis is not solved in political's and economicst's circles and it's one of the most important factor determining EU funds success. The European Union sets strategy of development and through Operational Programmes and their priorities is implemeting them. In many cases drawing of funds is not proceed according to plan and this can result in inefficient allocation of financial instruments.

In order to find the effectiveness, in other words find any correlation dependency between European funds and regional development indicators, was summed up total funds drawn by each subsidy programme. In case of environment, the total amount drawn by each priority axis over 7-year time period in South-Moravian region was summarized and in case of agriculture production was used total amount drawn by State Agriculture Intervention Fund. As a basis for searching correlation dependency serves selected indicators from environmental area and indicators from agriculture production.

The selection of indicators was based on data availability. For particular Subsidy Programme it was possible to gather 100% complete data that means total amount of funds drawn by particular programme, which is crucial for accuracy of results. Originally planned was searching dependency between OP's Business and Innovation, Human and Resources, and ROP Southeast. After a in-depth analysis it was concluded the results would not be provable, because these funds could be compared to indicators such as GDP growth, unemployment, the average montly wage which are affected by high proportion of many other's factor. And lastly, 100% data availability was not gained for these OP's.

First set of indicators is selected from Subsidy Programme Environment. The global priority is to improve and protect environmental quality as one of the basic principles of sustainable development. Environmental quality is fundamental to the health of population and increase it's attractiveness of the area to live, work and invest. As a result investment attractiveness is not only increase in employment but also maintain competitive sustainable economic growth in regions. The selection of indicators was based on representative proportion of three parts of environment: water, air and waste. Each part is constituted by concrete indicator through which the impact of European funds is evaluated.

The second subsidy programme is the State Agriculture Interventional Fund. Farming in the Czech Republic is one of the most important factors affecting biodiversity. Agriculturally managed ecosystems contain important components of biological diversity important for ensuring food production, ecosystem functioning and safe life. Sustainable use is the basis for biodiversity conservation agricultural ecosystems. Two indicators were selected, the first one representing the animal production and the second one representing crop production. Considering the development of states both indicators and funds drawn by SAIF, the correlation dependency will be searched.

During proceeding of work is really important to take into consideration many factors influencing the relativeness of results.

The first of them is short time series. Inasmuch as drawing subisides is formed into 7-year programming period, the most convenient period to consider was the period 2007-2013 in respect to completeness of drawing funds, approaching to be approximately 95%. In order to to search dependency between selected indicators and funds it is difficult to conclude very objective results, because observation of 7-year time series of indicators is insufficiently short. From statistical point of view time series in insufficiently short. Despite this obstacle it was decided to search for correlation dependency because the influence of European funds is indeed demanding since drawing European funds have launched.

The second factor influencing the correlation dependency is unstable development of EU funds. In very beginning of programming period, OP Environment was not launched which affected the income of funds for first year to be zero. Whereas drawing funds is conditioned by precise administrative process, in many cases the drawing amounts are fluctuating a lot as a result of non-compliance rules setted by managing authorities.

4.1 Subsidy Programme: Environment

Operational programme Environment is according to amount of budget the second biggest Czech Pperational Programme. In the years 2007-2013 is disposing of almost 5 milliards euros. The Operational Programme aims to protect and improve environment quality in Czech Republic.

For purpose of work were selected 3 indicators constituting major components of environment. Water, Air and Waste production. Based on financial allocation drawn from particular priority axis, the correlation dependency will be searched.

The Operational Programme Environment in programming period 2007-2013 consists of 7 priority axis and each of them is aiming to support projects with various purposes. The first priority axis is concerning about subsidies for water infrastructure and reduction of flood risk. As the content of the first PA indicates, the supported projects are those with intention to water pollution, improving the quality of drinking water and reduction of floods risk. The finance provided by European Union should reduce pollution from municipal sources, that means construct and intensificate wasterwater treatment plants in agglomerations over 2 000 population and in agglomerations below 2 000, which are located in areas requiring special protection. The financial aid should aim to technical measures to reduce the discharge of particularly dangerous substances from industrial pollution sources and should aim to drinking water quality improvement.

The second priority axis aims to improve or maintain air quality and reduce emissions of the main pollutants into the air with an emphasis on the use of environmentally friendly methods of energy, including energy savings. Drawn funds from PA 2 are about to improve air quality and reduction of emissions. The funds provided by PA 2 are used for reconstruction of combustion sources to reduce emissions or for installation of additional equipment to capture emissions of nitrogen oxides and sulfur or solid pollutants. The types of supported projects are eg. reconstruction of non-combustion sources or installation of additional equipment to capture emissions, reconstruction and adjustments to especially large stationary combustion sources.

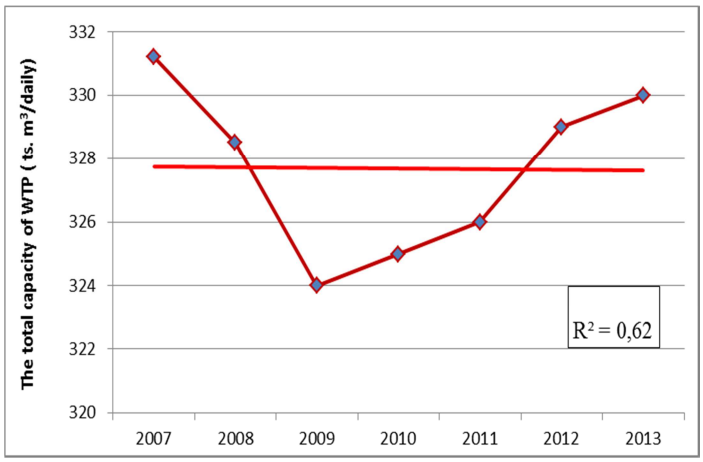
The fourth priority axis main's goal is to support improvement of waste management and removal of old environmental burdens. The funds are used for many types of supported projects, e.g. integrated waste management systems, regional system for mechanical and biological treatment of municipal waste, equipment for energy recovery of municipal waste, separate collection systems, storage and handling of waste, systems for collection and separation of waste and biowaste, waste utilization facilities, particularly waste sorting and recycling.

4.1.1 *The total capacity of wastewater treatment plant (m^3/daily)*

As a first environmental indicator, the total capacity of wastewater treatment plant was selected. The data constituing basis for given indicators was obtained from Czech Statistical Office for given period over analyzed territory.

For achieving precise result is need to have a look at trends of indicators because even without drawing subsidies there still exists trend of capacity of wastewater treatment plant. Because these two variables (subsidies and the capacity) are measured in different units the dimensionless number in order to compare trends will be used.

Graph1: Trend the total capacity of wastewater treatment plant (thousands m^3/daily)

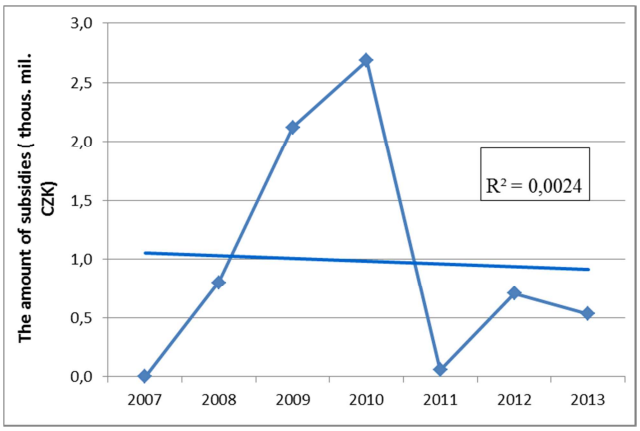


Source: Own processing, CSO

The graph shows the capacity of wastewater treatment started decline sharply, stopped in third year of observation and then increased sharply.

The shape of the trend demonstrates very slight decline during years 2007-2013.

Graph 2: Trend subsidies for water infrastrucutre



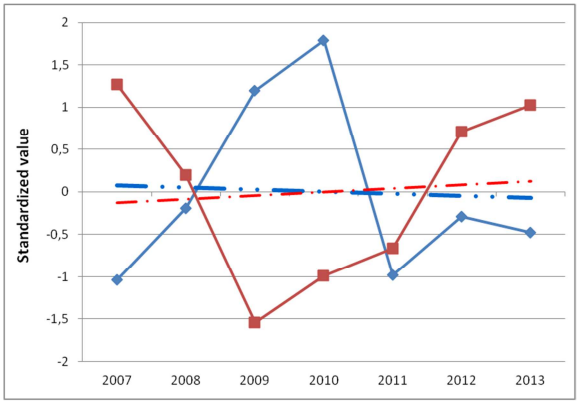
Source: Own processing, OP Environment

This diagram represents trend of subsidies drawn for water infrastructure during programming period 2007-2013. The shape of the trend demonstrates slow decline in values.

There is a clearly defined pattern to the graph, and this can be taken to mean that the amount of subsidies fluctuates a lot every year. The fluctuations in the yearly values could be caused by a variety of factors, e.g. in the first year – absence of drawing funds for water infrastructure. The process of drawing funds is dependent on precise administration process which in many cases causes ineffective drawing of funds, delays the whole process of drawing subsidies and lead to unbalanced usage of funds during programming period.

Considering these two trends calculated in different units, it is not possible to compare them with each other. For clearer picture of development these two indicators over observed period is best to compare them. To draw conclusion about comparism of both indicator's trends is need to convert them into dimensionless number. This step was accomplished by statistical method calculated by dividing the deviations from the standard deviation. Through this process it was obtained dimensionless unit. This dimensionless unit is valuable link between selected variables. Due to the dimensionless number it was possible to compare trends of different units.

Graph 3: The comparism of trends



Source: Own processing, CSO, OP Environment

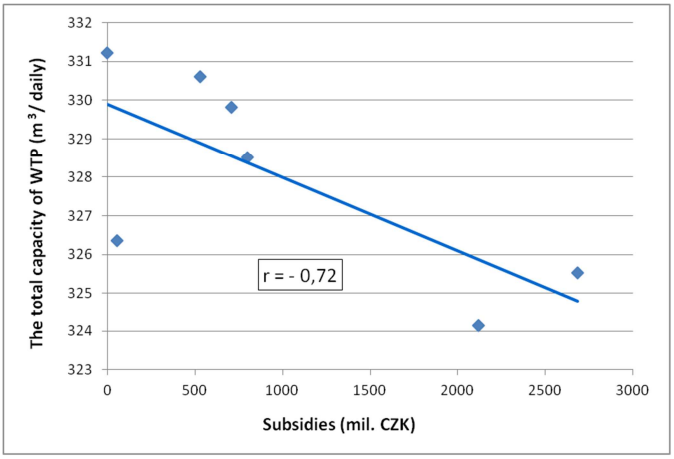
From graph above it is possible to observe and compare trends of subsidies drawn for water infrastructure (denoted by blue colour) and trend of the capacity of wastewater treatment plant (denoted by red colour). The shape of trends crosss each other in the opposite direction in small extent. While trend of subsidies is slightly decreasing slope, trend capacity of wastewater treatment plant is slightly increasing slope. Both of them are slightly changing .

Now, when the trends were compared to each other, it is possible to see how both trends was chaning over time period and it will help us to conclude very precise results.

In order to be accurate as much as possible, two graphs of correlation were created. The first one is about to depict the correlation using real values, that means using real amount of subsidies for water infrastructure and real numbers of the capacity of WTP.

The second correlation is about to show the correlation based on deviations by trends. In order to find the real correlation dependency between European funds and the capacity of wastewater treatment plants, it is demanding to eliminate trends which are influencing the relationship. Thefore the correlation dependency based on deviations by trends is more valuable and is showing relationship between measured indicators accurately.

Graph 4: Correlation subsisides and the capacity of WTP (m^3/ daily)



Source: Own processing, CSO, OP Environment

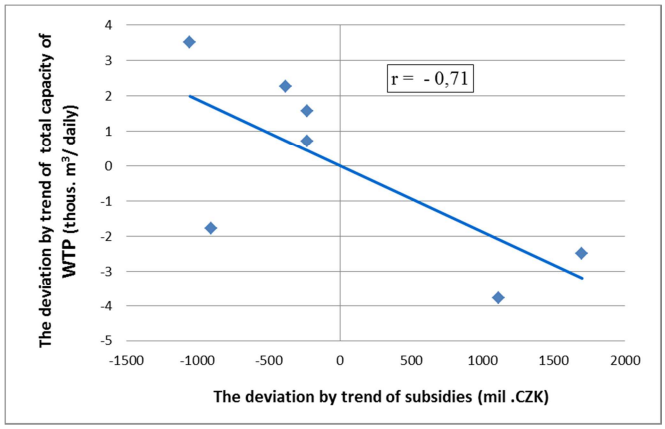
This diagram represents relationship between two variables, subsidies and the capacity of wastewater treatment plants. The graph shows the negative tightness correlation dependence. The result of correlation coefficient -0,72 demonstrates negative correlation dependence and determines steadilly falling shape of chart.

As a input to correlation analysis were used real values which are about to demonstrate the relationship between variable icluding influence of it's trends.

Demonstrating correlation is likely to show dependency of variables but it's not possible to conclude their conditioning. The correlation does not allow itself, there is need rational explanation.

According to the diagram, the negative correlation indicates that flowing funds had negatively affected the capacity of wastewater treatment plant. This statement cannot be used as a valid, because as it was mentioned in paragpraph above, there is always need of rational explanation of correlation dependency. The explanation is that there were no influence of subsidies on the capacity of wastewater treatment plant as an assumption of impossible negative effects of funds on the total capacity of wastewater treatment plant. As it is logical, the lower capacity cannot be caused by flowing subisides to water infrastructure. Rational explanation of negative correlation dependence is that the whole amount for water infrastrcutre aims also for other purposes, not only for intensification and reconstruction of wastewater treatment plants, (e.g. reduction of flood risk, technical measures to reduce the discharge of particularly dangerous substances from industrial pollution).

Graph 5: Correlation subsisides and the capacity of WTP (thous. m^3/ daily) through deviations by trend



Source: Own processing, CSO, OP Environment

This diagram shows correlation dependency between two variables using deviation by trends. The shape of graph indicates the negative tightness correlation dependence. The result of correlation coefficient -0,71 proves the negative correlation as well and also determines significantly falling shape of chart.

As a inputs to correlation analysis were used deviations by trends in order to flattened out the impact of trends.

As a result of correlation coefficient signs it's negative depedence, the interpretation of such relationship is likely to show dependency of variables. It's not possible to conclude their determination on each other. This correlation doest not allow, the logical explanation is always required.

There is a clearly defined pattern to the graph, and can be taken to mean that the negative correlation indicates the flowing funds are negatively affecting the capacity of wastewater treatment plant. As it was stated in previous correlation, the statement cannot be used as a valid, because there is always need of rational explanation of relastionship. Ensuing explanation of relationship is that there were no influence of funds on the capacity of wastewater treatment plant as assumption of it's impossible negative effects on the total capacity of wastewater treatment plants. As graph implicate, the lower capacity cannot be reached by flowing subisides to water infrastructure. Logical explanation of negative dependence comes from drawing the whole amount for water infrastrcutre which aims also for other purposes, not only for intensification and reconstruction of wastewater treatment

plants, (e.g. reduction of flood risk, technical measures to reduce the discharge of particularly dangerous substances from industrial pollution)

Conclusion:

For clear outcome of relationship between variables it was used correlation based on deviation by trends as well as correlation based on real values. For better understanding were depicted trend of particular indicators and their subsequent comparism.

Results of both correlation are closely related, it means there is nearly no distinction between correlation using real values and correlation used deviations. Both of them indicates no infuence of funds on given indicator.

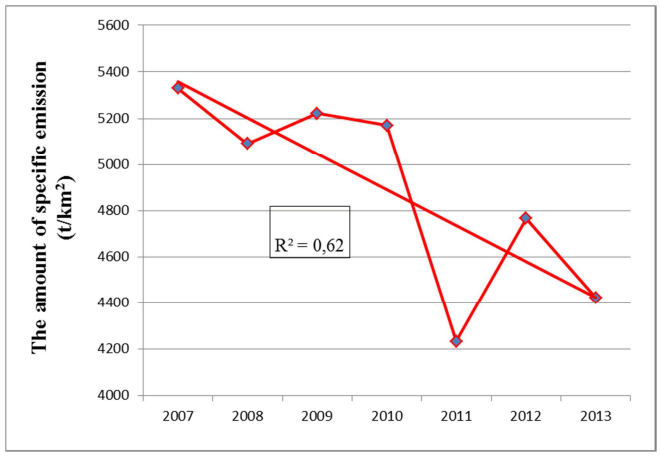
As correlation diagrams show, funds have not affected the capacity of wastewater treatment plant. The logical explanation already mentioned is the entire amount used for water infrastructure was drawn also for other supported area (reducing flood risk, technical measures to reduce the discharge of dangerous substances) and thus have not affected the capacity of wastewater treatment plants. In field of increasing capacity of wastewater treatment plants whose aim is to waste water from industrial undertaking agricultural production, European funds are evaluated as having no impact.

4.1.2: *The amount of specific emissions (t/km^2)*

As second indicator determining the influence of subsidies in respect to environment, air quality, is the amount of specific emissions. The exceeded emission limits represents threat for human health as well as for protection of ecosystem and vegetation. European Union aims in decreasing amount of specific emission and in order to do that provides funds eg. for reconstruction of combustion sources, installation of equipment to capture emissions.

In order to search for dependency between value of specific emission over observed time period and funds invested into this area is need to take into consideration trend specific emissions and trend funds aimed into decreasing them.

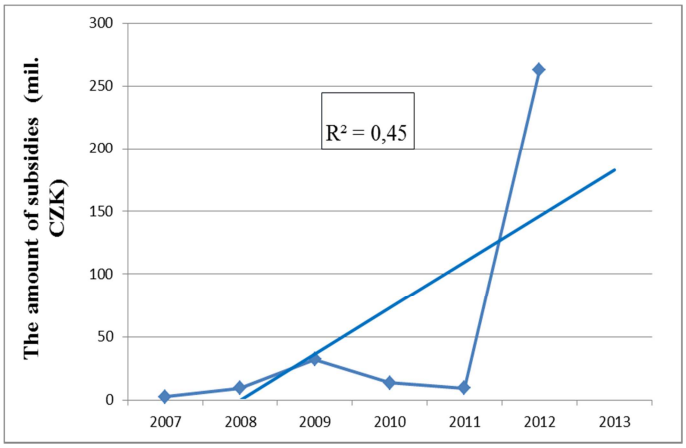
Graph 6: Trend of amount of specific emission (t/km^2)



Source: Own processing, CSO

This graph shows steep decline over observed period. From shape of chart it is possible to conclude the amount of specific emission has decreased significantly over seven year period.

Graph 7: Trend of subsidies invested in priority axis 2, subsidies for improving air quality



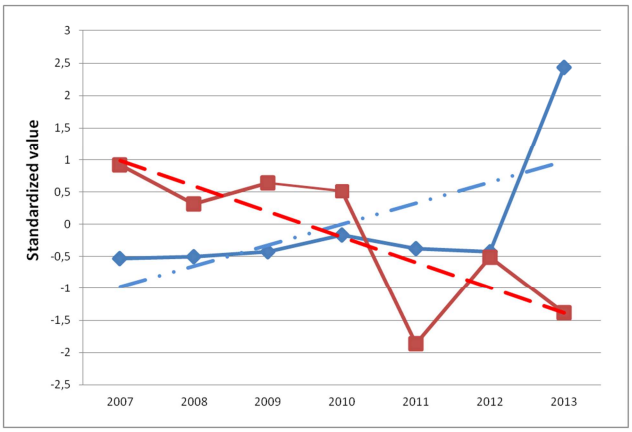
Source: Own processing, OP Environment

The line graph clearly shows the amount of subsidies have been in first years stabilised but peakened in the end of time period. So the shape of trend indicates steep increase in funds used for improving air quality. This steep increase could be explained by irregularities in drawing funds caused by administration difficulties.

Those trend of subsidies and specific emission have been impacting the dependency searched.

For clearer overview and comparism trends of both variables, the following graph is depicting the comparism. The trends are comparable because the dimensionless unit was used to demonstrate them.

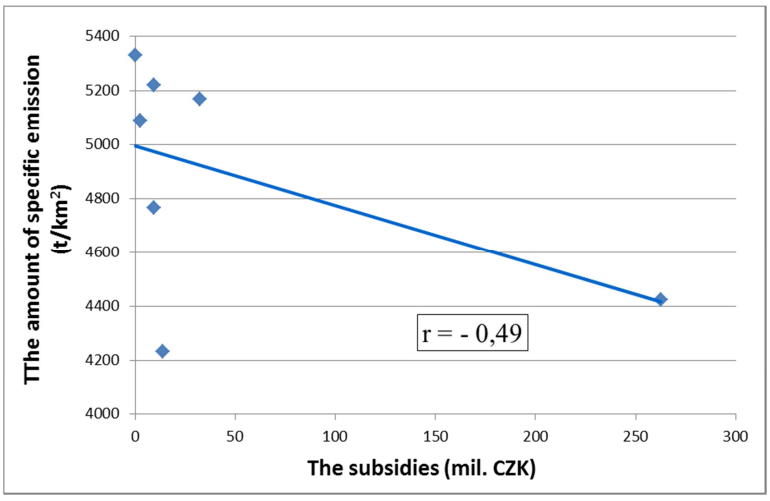
Graph 8: The comparism of trends



Source: Own processing, CSO, OP Environment

This chart is about to highlight the comparism of subsidies trend, indicated as blue one trendlines and specific emission trend, indicated as red one trendline. The trends are crossing each other in the opposite direction significantly. The trend of subsidies is increasing and trend of emissions is decreasing. The level of growth and decline is approximately at same level, as it's obvious from graphical illustration.

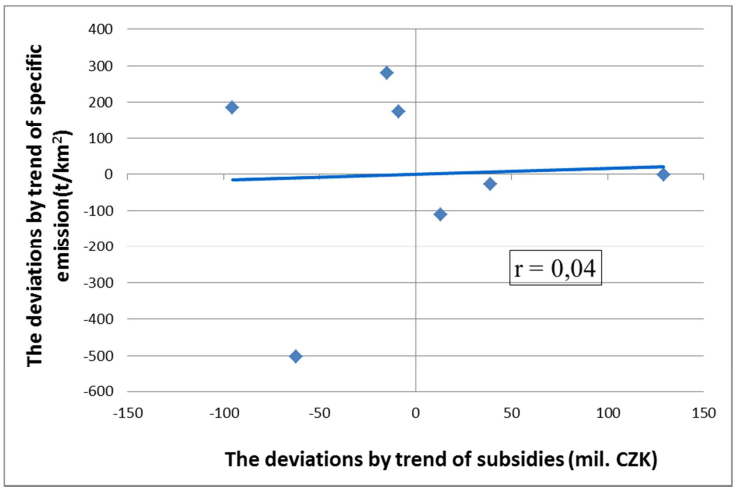
The Graph 9: Correlation subsidies and the specific emission based on real values



Source: Own processing, CSO, OP Environment

The result of correlation coefficient implicates negative correlation dependence of subsidies and the amount of specific emission over observed period. The correlation is measured based on real values which can bring up bias into correlation dependency between variables by it's trends. This graphical depiction concludes the higher the amount of subsidies is, the lower amount of specific emission is measured over analyzed area which results in desirable outcome, in other words, the effective usage of funds. Assuming the fact the correlation is affected by trends of both variables, it is not objective to draw final conclusion about influence of funds. The conclusion is distorted by trend itself and thefore it is need to draw up conclusion based on deviations by trends, which will bring up unbiased and objective result.

The Graph 10: Correlation subsidies and the specific emission through deviations by trend



Source: Own processing, CSO, OP Environment

This graph represents correlation between two variables whose trend was eliminated in order to achieve higher accuracy of dependency. As shape of diagram and correlation coefficient indicate, the level of dependency is reaching nearly zero level. The relationship of variables is thefore evaluated as independent. Subsidies drawn for air quality have not affected the level of specific emission during time period. The logical explanation of zero dependence could be that trend of specific emission is decreasing by itself without investing funds from European Union. The reduction of specific emission is general interest not only the European Union but Czech republic as state itself, thefore it is need to count with other existing financial sources for decreasing output of emission over analyzed area.

Conclusion

The creation of dual correlation dependence based on different inputs seems to be really important once the results differ and draw different conclusions.

The first correlation using real values represents negative direct dependency which means the impact of funds is relatively high, because as funds are increasing, the amount of specific emission is decreasing. In this case the correlation dependency results in desirable outcome and effective usage of funds.

Whereas the result of correlation dependency in second correlation which is using deviations by trends is much diffetent, it leads to different conclusion. The correlation which smooth trends out approaches zero dependency. In this situation it is possible to understand trends as strongly influencing factor of relationship.

The relationship of variables is thefore evaluated as independent. Subsidies drawn for air quality have not affected the level of specific emission during time period. The logical explanation of zero dependence could be that trend of specific emission is decreasing by itself without investing funds from European Union. The reduction of specific emission is general interest not only the European Union but Czech republic as state itself, thefore it is need to count with other existing financial sources for decreasing output of emission over analyzed area.

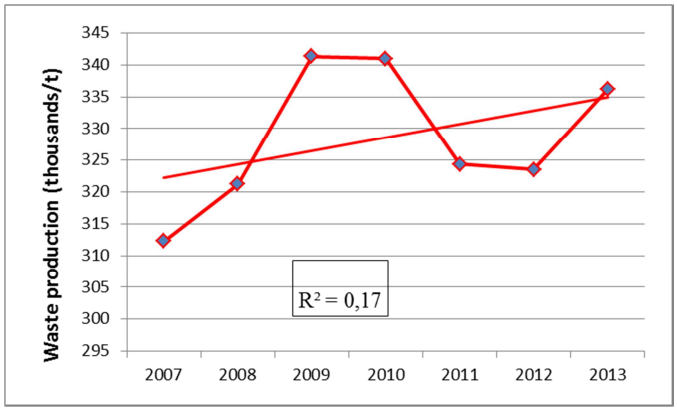
From comparing results of both correlation we can see that trends can strongly affect the relationship, which can misslead to conclusion about influence of funds. For this reason it's demanding to eliminate trend to reach accurate and unbiased results.

The final conclusion about zero dependency of subsidies drawn for air qaulity and the amount of specific emission can be explained as raising the general awareness of air quality. Once the emissions are perceived as a main factor negatively affecting human health, it's reduction is in interest of state, environmentalists and LAG's which aims in reduction the level of specific emission and thefore the influence of European funds is not that apparent and visible.

4.1.3: *The municipal waste production (t)*

In order to measure the third indicator from environment, the municipal waste production was selected. The waste production is increasing over past decades thefore the main concern is about positive impact of funds. Measuring correlation dependency between funds used for waste management and the amount of municipal waste production over 7-year period in South-Moravian region will result in conclusion whetever European funds have been affecting the level of waste municipal production. Before searching for dependency of these two variables, it's crucial to take into account trends of each indicator because of it's influence on the correlation dependency.

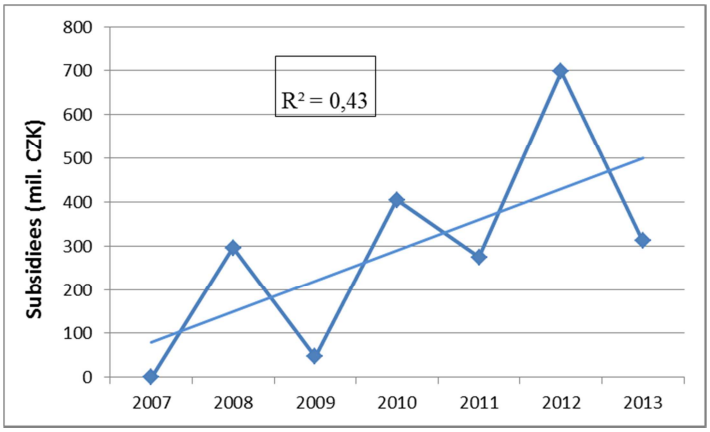
Graph 11: Trend municipal waste production



Source: Own processing, CSO

The shape of diagram represents increasing trend of waste production over time period. The highest production was measured approximately in the middle of observed period.

The Graph 12: Trend subsidies invested in priority axis 4, subsidies for for waste management and removal of old environmental burdens

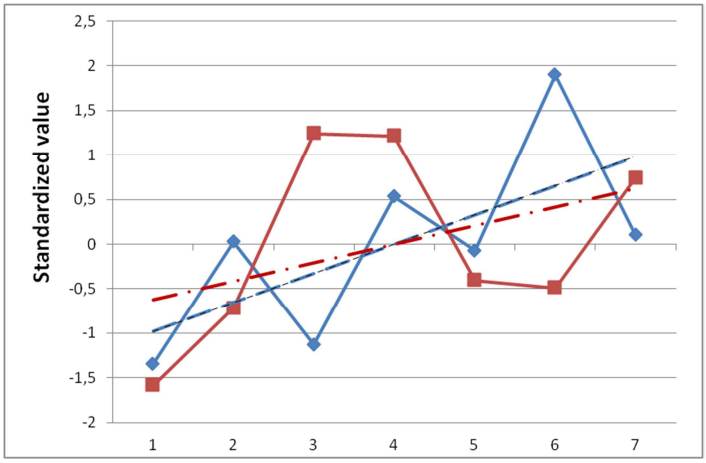


Source: Own processing, OP Environment

The shape of diagram represents increasing trend over time period. In the first year drawing of funds was at zero level but later on the drawing of funds started to grew up.

For searching of dependency between subsidies used for waste management and output of municipal waste production would be useful to compare development of both trends. Following graphical illustration enables comparism of these two trends, using dimensionless number.

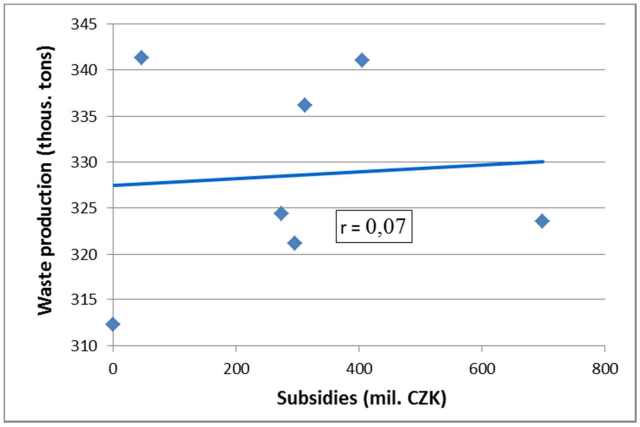
The Graph 13: Comparism of trends



Source: Own processing, CSO, OP Environment

This chart is about comparing of both trends. It is possible to observe how trends were developed compare to each other. Assuming short time period of observation is possible to claim that trend of subsidies increases sharply, which could be caused by unabalance drawing of funds during programming period. Whereas trend of waste production increases slightly. The final comparism is demonstrating increasing level of trends in very similar rate.

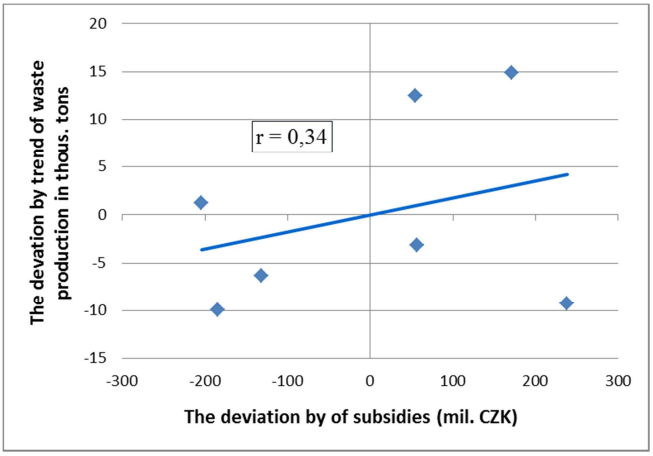
The Graph 14: Correlation subsidies and waste production based on real values



Source: Own processing, CSO, OP Environment

This graph demonstrates the level of correlation dependency between subsidies drawn for waste production and the amount of municipal waste production. Using correlation coefficient is possible to indicate very low, nearly zero dependency between these two variables. The reason can be that trend affects the relationship of funds and waste production. As there is no dependency it leads to conclusion of any impact of European funds on municipal waste production, which is undesirable outcome and in that case we would evaluate European funds as ineffective. But the final conclusion cannot be drawn because trends of variables are influencing the relationship. Thefore the second graphical illustration of correlation will conclude in objective, unbiased results.

The Graph 15: Correlation subsidies and waste production based on real values through deviations by trend



Source: Own processing, CSO, OP Environment

The shape of chart and result of correlation coefficient indicates very low direct correlation dependency between European funds and waste production. This correlation dependency is

undesirable, because in order to prove positive impact of European funds on waste production, it is demanding to have negative correlation dependency in this case. The result indicates the higher amount of subsidies drawn, the higher amount of municipal waste production, which is impossible and undesirable. The flowing of European funds to waste management cannot cause the higher output of municipal waste production. Thefore, based on statistical method used, funds cannot be assessed as major cause of increasing amount of municiapal waste management. This result cannot be used as valid because increasing amount of subsidies cannot cause the higher amount of municipal waste production. There has to be other factor influencing this undesirable relationship. The logical explanation might be that the subsidies used for decreasing waste management have not been drawn properly. It is also important to realize European funds used for waste management support also other type of projects, those with aim to decrease environmental burdens.

Conclusion:

In this case the correlations have differed a lot. Correlation based on real values conclude no dependency between waste production and funds whereas correlation using deviations by trends declare low level of positive dependency which in reality means undesirable outcome. Accordingly to the fact it is possible to evaluate funds as having no impact on waste production. The reason could be that the amount of subsidies supports also other types of projects (those aiming to decrease environmental burdens) or that the financial amount provided is not enough for covering it's growing waste production. Nevertheless it is possible to evaluate funds as ineffective, because there should be clear indirect dependency between funds and waste production. According to priority goals of European Union in environmental area waste production should be reduced by using funds.

4.2 Subsidy Programme: State Agricultural Intervention Fund

State Agricultural Intervention Fund (SAIF) is the agency - intermediary financial support from the European Union and national resources. Great opportunities for agriculture constitutes the Rural Development Programme (RDP), which was launched in 2007.

The main aim of RDP is to support competitiveness of agriculture and forestry. The funds also contributes to improving of environment and landscape and life quality in rural areas and diversification of rural economy.

The rural development programme is divided into 4 priority axes and each of them has specific measures to be accomplished. Within priority axis the South-moravian region could apply for many measures, e.g. modernization of agricultural enterprises, adding value to agricultural, agroenvironmental measures, management of integrated production, support of establishing enterprises and their development.

In order to prove whatever European funds provided by SAIF have been affecting development of selected inficators from agriculture production, was applicated correlation dependency.

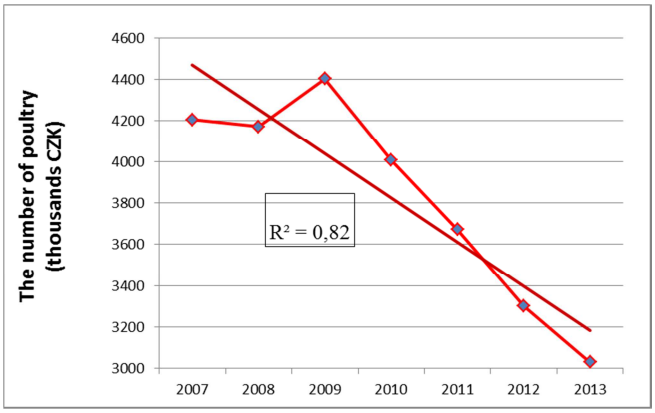
As a representative indicator from animal production was selected poultry farming and from crop production potato harvest. Based on data obtained by Czech Statistical Office, the number of indicator's state will be correlated with total amount of funds provided by State Agricultural Interventional Fund.

4.2.1: *Poultry farming*

In area of agriculture production in respect to animal production was selected poultry farming. In this relationship it's searched for dependency between poultry farming and overall amount of subsisides provided by SAIF.

Firstly, is crucial to take into account the trend of poultry farming over time period.

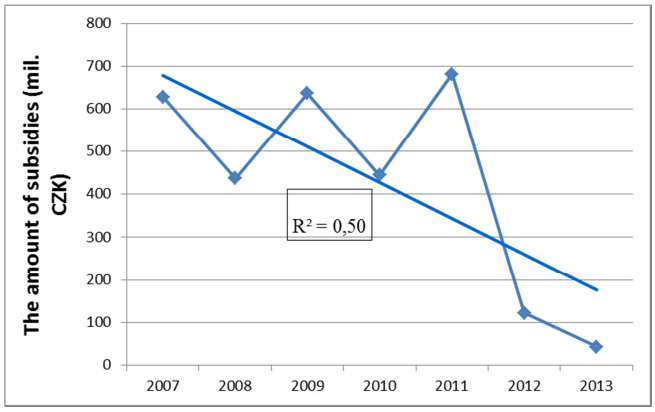
The Graph 16: Trend poultry farming



Source: Own processing, CSO

This chart represents decreasing trend of poultry farming during seven year time period. During time period the values of poultry farming have been decreasing steadily.

Graph 17: Trend total amount of subsidies drawn by SAIF

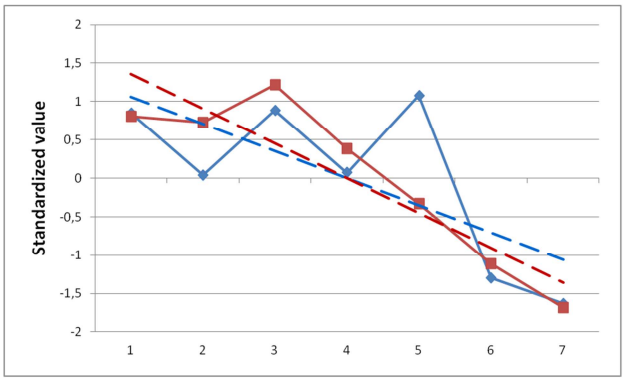


Source: Own processing, OP Environment

This graph is demonstrating how total amount of subsidies drawn over South-Moravian region from SAIF have changed. This chart represents decreasing trend in using funds. Sums have been fluctuating over seven year period.

In order to compare trends to each other, the following graph illustrate the situation where both variables are converted on one dimenionless unit and based on that it is possible to compare them.

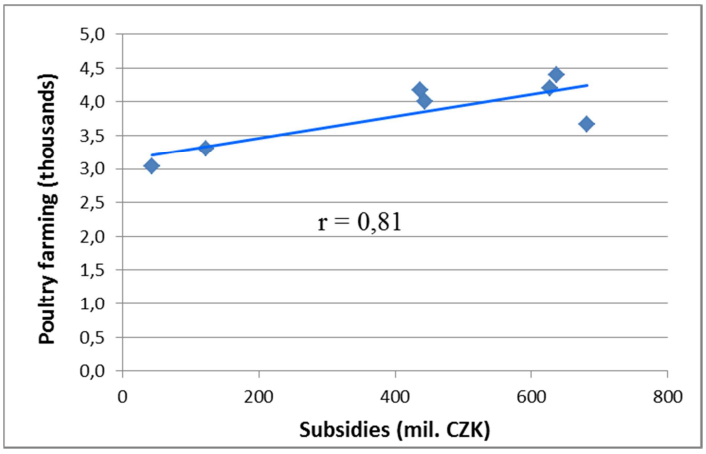
Graph 18: Comparism of trends



Source: Own processing, CSO, Environment

The diagram shows the comparism of both trends. Trend of poultry farming is decreasing approximately in same rate as trend of subsidies. This graphical illustration will help for conclusion about correlation of variables.

The Graph 19: Correlation poultry farming and SAIF subsidies based on real values

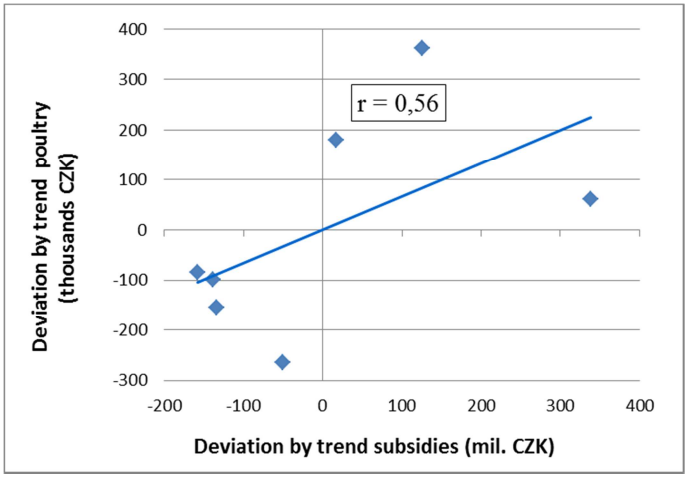


Source: Own processing, OP Environment

As can be seen in graph above, the shape of chart indicate positive direct correlation between poultry farming and subsidies based on real values. In order to search for dependency was used real numbers of poultry farming and real amounts of subsidies used for agriculture. The

coefficient results in high degree of correlation dependence. That means funds have positively affected the number of poultry even if trends are decreasing. This conclusion is not final because according to methodics used, it's neccesary to smooth trend out because they are influencing the correlation dependency of subsidies and poultry farming. Following diagram will show the objective depedency between two variables.

The Graph 20: Correlation poultry farming and SAIF subsidies based on deviations by trend



Source: Own processing, CSO, OP Environment

The shape of chart and correlation coefficient demonstrate positive direct dependency between subsidies and poultry farming. The correlation coefficient shows medium level of correlation dependency which can be interpreted as growth in subsidies has positive impact on poultry farming and thus affects it positively.

Conclusion:

Based on processing of both correlation is more objective to draw conclusion about relationship of subsidies and poultry farming. As it's possible to notice in the first graph of correlation, where real values have been used, the level of correlation dependency is significantly high. But it is important to take into consideration that trend of variables are affecting the dependency thefore the conclusion is not sufficient for purposes of thesis. In order to bring up accurate results, the correlation was made of deviations by trend. This method is interpreted by the second graph, which is showing lower level of correlation dependency than previous one but still shows medium level. This brings us to conclusion of effective use of European funds which is desirable and as well valuable.

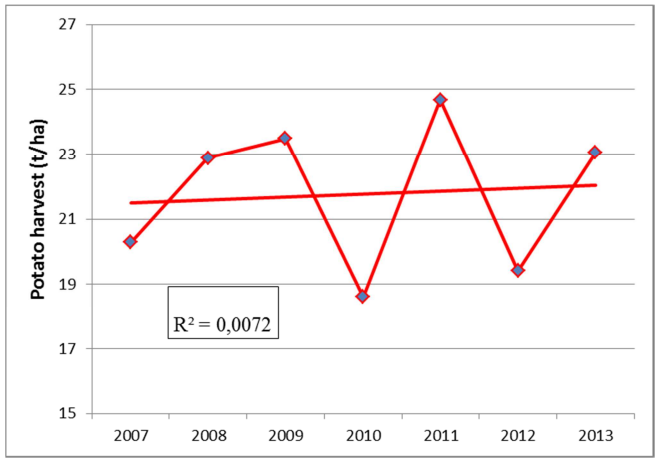
Even though trends are decreasing, the positive correlation dependency exists. And thefore it is possible to evaluate European funds as effective because it has influenced the number of poultry in positive direction. The European funds thus positively affected the poultry farming in region.Without using them, the higher probability of sharper decrease of poultry farming could be expected.

4.2.2: *Potato harvest*

As a second indicator of agriculture production, representing crop production was selected potato harvest.

In order to search dependency between potato harvest and subsidies amounts drawn for agricultural over time period is need to take into account own trend of potato harvest.

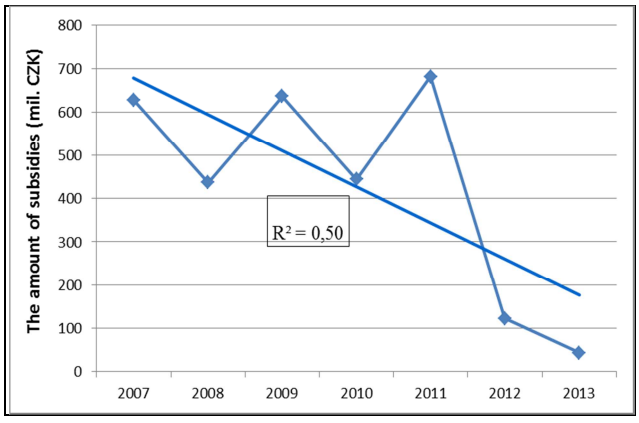
The Graph 21: Trend of potato harvest



Source: Own processing, CSO

The chart demonstrates high fluctuations in level of potato harvest which results in nearly stable trend over years 2007-2013.

The graph 22: Trend total amount of subsidies drawn by SAIF

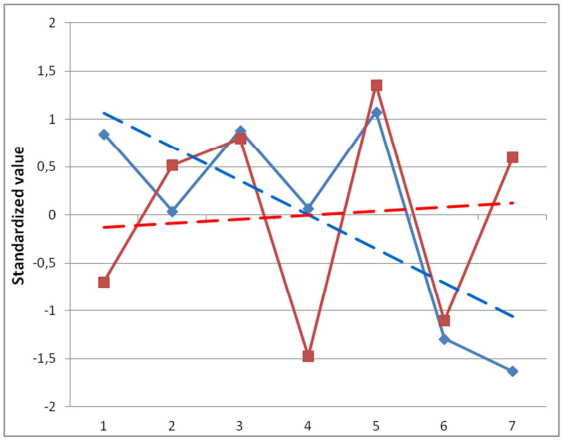


Source: Own processing, OP Environment

This graph is demonstrating how total amount drawn over South-Moravina region from SAIF have changed. This chart represents decreasing trend in using funds. Sums have been fluctuating over seven year period.

In order to compare development of trends, following graphical illustration of comparism both trends. The following chart is illustrating the situation where both variables are converted into one dimenionless unit and based on that we can to compare them.

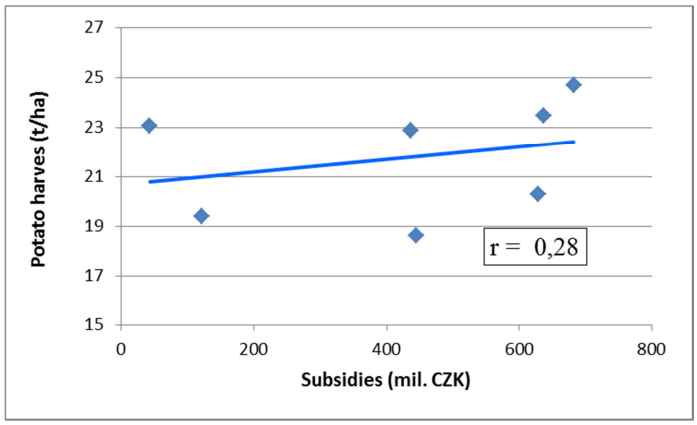
The Graph 23: Comparism of trends



Source: Own processing, CSO, OP Environment

This chart is about to help with comparism of both trends. While both variables are measured in different units and are thus incomparable, this chart using convertion to dimensionless units will enable objective comparism. The trend indicating subsidies (blue trendline) is sharply decreasing and trend indicating potato harvest (red trendline) is moderately increasing. Both trends are crossing each other in the opposite direction.

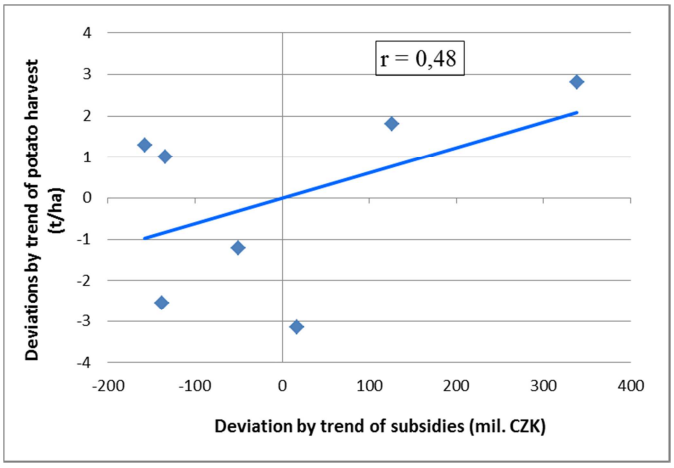
The graph 24: Correlation subsidies and potato harvest based on real values



Source: Own processing, CSO, OP Environment

This correlation coefficient and shape of chart demonstrate direct positive correlation dependency which is about moderate level. It signs the increase in funds obtained, the higher potato harvest is achieved. Whereas this correlation is using real values, that means the result is affected by trend of potato harvest and the conclusion is not objective. As it is generally known, we cannot expect absolute correlation depedency between such variables. The funds are not the main factor of determination for potato harvest. Thefore for unbiased result of effectiveness of funds it is crucial to draw graph using deviation by trend. Because it is obvious trend will always exists in potato harvest even funds wont be used.

The graph 25: Correlation subsidies and potato harvest based on deviations by trends



Source: Own processing, CSO, OPEnvironment

The second correlation using deviations by trends represents positive direct dependency between potato harvest and total amount of funds drawn from SAIF. The results 0,48 shows medium level of correlation dependency. The correlation smooth trends out so thefore the dependency can be considered as objective and unbiased. The chart indicates that if there is

increasing amount of funds, the level of potato harvest increases as well. This is desirable output and aims to effective usage of funds. The amount of finances provided by State Agricultural Interventional Funds has influenced positively the level of potato harvest over time period 2007-2013.

Conclusion

It is apparent that tightness dependency is affected by trend. The correlation dependency in this problematics can never reach absolute direct dependency, which is in value 1, because funds have no direct condition on potato harvest. The funds can enhance the level of potato harvest but there comes valuable factors affecting potato harvest such climatic conditions. Without them potato harvest would not be possible. Thefore the relationship of subsidies and potato harvest can never approach 1. And from this reason we have to get rid of trend in order to reach the most accurate results. This claims proves depiction of two correlations based on different input variables. In the first correlation was used real amounts of subsidies and potato harvest and result was about low correlation dependency. Whereas in second correlation was used deviations by trend and the result was different – it was reached middle level of dependency. Conclude it European funds can be assessed as effective. Contribution of subsidies has positive impact on potato harvest. Even though total amount of SAIF was over time period decreasing, it still positively affect the level of potato harvest which is desirable goal of European funds.

5. Discussion

The main goal of thesis was to search for the dependency between European funds and selected indicators. Since entering into European Union, the possibility of drawing funds was quite interesting for self-territorial units. This work was focused on using funds from two Subsidies Programmes. The first of them is Operational Programme Environment as a second biggest czech OP according to disposable budget and the second subsidy programme is State Agricultural Intervention Fund. The measuring range of dependency was on regional level. The analyzed territory was South Moravian Region. The very beginning intention of author was to search for dependency also between macroeconomics factors such as level of GDP and unemployment, but because lack of data and the highest accuracy was finally used indicators from environment and agriculture production. Within whole work it is quite important to consider that dependency between funds and indicators can never achieve dependency 1 (the strongest implication of funds on indicator) because indicators will always have trend even without drawing funds. While searching for dependency it is also need to be aware of other factors which can also positively or negatively affect the development of indicators. If it is considered the European fund impact weight, it can never reach 100%. Drawing funds from European Union is often abused and funds are not used for intended purposes, this is why author has found this solved problematics as interesting. But within chosen problematics, there comes into consideration discrepancies. Time period of using fund in selected period is not that long and from statistical point of view it is hard to observe development of selected indicators in 7 years data set. But the concern to found if there is some correlation between European funds is relatively high, hence the author has decided to use as much available data as possible. In order to reach accuracy, the most specific indicator were chosen in relation to funds used for particular indicator and even within short time period was trying to search for dependency. In some cases, where were negative dependency measured, the subsequent explanation was given.

The current state of environment in Czech repbulic cannot be considered satisfactory because of monitored trends in recent years imply slowing down, stop or reverse of some very positive trends that characterized the beginning of 90 years of the 20th century. For quality of environment are the main problems and risks following factors: exceeding emission limits,

environmental pollution by hazardous substances from indutstrial enterprises, agricultural and households. Other factor negatively influencing the quality of environment in water aspect is wastewater discharges into watercourse which can be ensured by intensification of wasterwater treatment plants and by implementing sewage systems. The overall production of waste from long time period is decreasing but since 1995 is production increasing. The monitored period (2007-2013) is not sufficiently long for assessing the slope of production. Within this period waste production has significantly varied. In order to decrease waste production European Union offers financial instruments in acquisition of integrated waste management systems and waste utilization facilities, particularly waste sorting and recycling. The separate collection systems, storage and handling of waste also contribute to reduction of waste production.

The comparison within EU, Czech Republic represents significantly low level of labour productivity in agriculture. Technical-material equipment of agricultural productions lags behind average, particularly ensuring animal welfare, elimination of negative impacts on environment and creation more attractive environment in rural areas. The subsidies from Rural Development Programme contribute to improving conditions for local farmers in order to boost their crop production and livestock. The funds are provided farmers to help them create better conditions for farming, e.g. purchasing of new technologies, construction or reconstruction of storage space, livestock facitilies, investment in equipment and technology for crop production. By Czech Republic's accession to the EU, the trend of consumer demand for a range of the food products with higher added value and quality in higher price ranges is increasing. Therefore, it is an important factor in increasing quality in this area, support for research, innovation and new technologies, acquiring brands, quality assurance, legal protection products, organic food certification, product promotion and systematic training of staff at all levels. In agricultural, exports have long applied mainly commodities milk, live animals, grain and sugar, whose export is not the perspective of the Czech Republic reasons for the low level of finalization of these commodities, and "one-off" of their exports. Based on mentioned reasons, the need of financial support for agricultural is required.

Upcoming period for drawing funds brings changes, in OP Environment the distribution of financial allocation is different than it was in previous programming period. The number of priority axes has changed a little bit. In programming period 2014-2020, for priority axis 1 which is concerning about improving water quality and reducing flood risks is assumed highest financial allocation (29,16% from overall program allocation). Improving air quality

in human settlements is assumed financial allocation in the height of 17,21% from overall program allocation. And the priority axis 3 (accoring to new division of priority axis in new programming period), waste and material flows and environmental impact and risk is assumed to be 17,4% financial allocation from overall disposable budget.

The Rural Development Programme in accordance with the Europe 2020 strategy, sets the following general objectives of support for 2014-2020 in detail expressed through the following six priorities. These are some of the following priorities: fostering knowledge transfer and innovation in agriculture, forestry and rural areas, increasing farm viability and competitiveness of all types of agriculture in all regions, promoting food chain organization, including the processing of agricultural products and marketing, animal welfare and risk management in agriculture, supporting the shift towards a low carbon economy in agriculture, food and forestry, which is resistant to climate, promoting social inclusion, poverty reduction and economic development in rural areas. Rural development policy should contribute to the competitiveness of agriculture, sustainable management of natural resources for climate action and balanced territorial development of rural areas.

6. Conclusion

The main goal of thesis was to find any impact of European funds on selected indicators, since drawing of European funds was launched. Results brought up conclusion whatever European funds have affected regional development through selected indicators.

In order to achieve precise results author used correlation based on deviation by trends which is eliminating the influence of trends and is demonstrating undisturbed relationship between indicator and funds. Graphicall illustration of correlations shows the depedencies between variables.

In the first case, where the capacity of wastewater treatment plants and subsidies used for water management were correlated, the correlation diagram has showed that funds have not affected the capacity of wastewater treatment plant. In this case i tis possible to evaluate the European funds as not having impact on the capacity of wastewater treatment plant. The logical explanation of any impact of funds could be that entire amount used for water infrastructure was drawn also for other supported area (reducing flood risk, technical measures to reduce the discharge of dangerous substances).

In the second case, the amount of specific emission and funds provided for improving air quality were correlated. According to results, the relationship of variables is evaluated as independent. Subsidies drawn for air quality have not affected the level of specific emission during time period. The logical explanation of zero dependence could be that trend of specific emission is decreasing by itself without investing funds from European Union. The reduction of specific emission is general interest not only the European Union but Czech Republic as state itself, thefore it is need to count with other existing financial sources for decreasing output of emission over analyzed area. The other explanation of zero dependency of subsidies drawn for air qaulity and the amount of specific emission can be found in raising the general awareness of air quality. Once the emissions are perceived as a main factor negatively affecting human health, it's reduction is interest of state, environmentalists and LAG's which aims in reduction the level of specific emission and thefore the effectiveness of European funds is not that apparent and visible.

The third relationship represents correlation dependency between municipal waste production and subsidies drawn for waste management. Correlation demonstrate low level of positive

dependency which in reality means undesirable outcome. Accordingly to the fact it is possible to evaluate funds as ineffective for reduction of waste production. The reason of this undesirable outcome could be that the amount of subsidies supports also other type of projects (those aiming to decrease environmental burdens) and the financial amount is not enough covering it's growing waste production. According to priority goals of European Union in environmental area waste production should be reduced by using funds.

The fourth indicator, represented agriculture production is poultry farming and total amount used from State Agricultural Intervention fund. The result of correlation dependency which is positive leads to conclusion of effective usage of European funds which is desirable and as well valuable. The European funds positively affected the poultry farming in region.

The fifth indicator representing crop production from agriculture is potato harvest correlated with total amount of SAIF. The correlation indicates middle level of positive correlation dependency. Conclude it we can evaluate European funds as effective. Contribution of subsidies has positive impact on potato harvest.

Considering results of subparts, we can conclude the final evaluation of European funds. Whereas it was proved funds from OP Environment have not been used effectively, funds drawn by State Agricultural Intervention fund was drawn effectively in respect to both indicators. This findings should lead to reflection what to change about positive impact of European funds on reginal development. As it's obvious from European Union priorities, the main objectives are aimimg to increase environment quality, boost agricultural production and sustain economic environment of the Czech Republic in accordance with the principles of sustainable development. In order to accomplish objectives setted by European Union is the highest possible impact of funds desirable. The administration process of drawing funds should be simplified because in many cases it is the reason of ineffective drawing of funds which can further affect regional development. As strategic priorities are for each programming period setted, the desired output should be reached and monitored in respect to development of stated indicators.

The first sub-goal, concerning about defining of Czech Regional policy, regional development, indicators and factors influencing it was fully accomplished. Definition of formation regional policy, reasons of establishments and presentation of indicators and factors

influencing regional development were provided by relevant czech and foreign literature resources.

The fulfillment of second sub-goal, which was about was „Searching for correlation between European funds and selected indicators and identifyng the main factors having impact on results“ was achieved during own part itself. Using statistical methods resulting in correlation was achieved final dependency between European funds and selected indicators. By contribution of this results is possible to evaluate European funds in some cases as effective, it means having impact on indicators and in some cases as not having impact on indicators, it means as ineffective.

The last subgoal, „Evaluation of results and conclusion“ was fully achieved. Evaluation of results was made in each sub-part of its own work in order to apparent understanding of results. The chapter conclusion is dedicated to detailed description of each conclusion and results in overall evaluation of goals.

About fulfilling of research question: „Is there any correlation between European funds and selected environment and agriculture production indicators?“ is possible to comment on that there exist correlation, in some cases it's possible to find either way positive or negative correlation.

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